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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/791,757	03/04/2004	Deuk-hwan Chang	1349.1358	5276
21171	7590	06/01/2006	EXAMINER	
STAAS & HALSEY LLP SUITE 700 1201 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005			MORRISON, THOMAS A	
			ART UNIT	PAPER NUMBER
			3653	

DATE MAILED: 06/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/791,757

Applicant(s)

CHANG, DEUK-HWAN

Examiner

Thomas A. Morrison

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– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 March 2006.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-23 is/are pending in the application.  
4a) Of the above claim(s) 19-22 is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1,2,4,11,12,16,17 and 23 is/are rejected.  
7) ☒ Claim(s) 3,5-10,13-15 and 18 is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 5/31/05.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

1. Applicant's 03/09/2006 amendment has been entered.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 23 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: the structure that causes the feed roller part to rotate, as claimed. There is no claimed structure for rotating the feed roller part (e.g., a reversible motor).

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-2, 4 and 16-17 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,085,420 (Sata).

Regarding claim 1, Figs. 2-4 and 7A-7F show a paper-feeding apparatus of an image forming apparatus (column 1, lines 5-10) having first and second drive roller shafts (10 and 45), and a paper cassette (see also Figs. 10A-12C for the cassette), the paper-feeding apparatus including

a first drive roller (5), rotatably disposed on the first drive roller shaft (10);

a pickup roller assembly (including 11, 12 and 13), rotatably disposed, at a first end thereof, on the first drive roller shaft (10);

a pickup roller (13), rotatably disposed at a second end of the pickup roller assembly (including 11, 12 and 13) to pickup a sheet of paper in the paper cassette in a first direction during a paper pickup mode, the pickup roller (13) being disposed in a second direction, opposite the first direction, with respect to the first drive roller (5);

a second drive roller (46), rotatably disposed on the second drive roller shaft (45), to press the sheet of paper with a first predetermined pressure against the first drive roller (5); and

a drive roller power transmitter (i.e., all of the elements that cause the first and second drive rollers (5 and 46) and the pickup roller (13) to perform as shown in Figs. 7A-7F) disposed to transmit a driving force between the first drive roller (5) and the second drive roller (46) and between the first drive roller (5) and the pickup roller (13) and thereby transmitting a driving force to the first and second drive rollers (5 and 46) and the pickup roller (13) during a paper pickup mode (Fig. 7B), and transmitting the driving force only to the first and second drive rollers (5 and 46) during a line feeding mode (Figs. 7D and 7E). See also column 6. At least during the time period shown in Fig. 7D, the driving force is only applied to the first and second drive rollers.

Regarding claim 2, Figs. 4 show that the paper-feeding apparatus includes a rotatable feed roller part (23) transmitting the driving force to the drive roller power

transmitter; and a driving motor (21) transmitting the driving force to the feed roller part (including 64).

Regarding claim 4, Fig. 3 shows that the drive roller power transmitter comprises: a swing gear part (including 28) disposed to engage with the feed roller part (23) (i.e., engage the feed roller part (23) via elements 24 and 25) and to transmit the driving force from the feed roller part (23) to one of the first drive roller (5) or the second drive roller (46), according to a rotational direction of the feed roller part (23), wherein the feed roller part (23) rotates in a first rotational direction during the paper pickup mode, and rotates in a second rotational direction opposite the first rotational direction during the line feeding mode. In particular, element 28 is located on the swing axis of elements 41. As such, element 28 can be considered a swing gear part.

Regarding claim 16, Fig. 3 shows a pickup roller assembly lifter (including 19) to separate the pickup roller (13) from the sheet of paper during the line feeding mode (Figs. 7D and 7E). At least during the time period shown in Fig. 7E, the pickup roller is separated from the sheet of paper.

Regarding claim 17, Fig. 7B shows that during the paper pickup mode, the pickup roller (13) contacts the sheet of paper.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Sata patent as applied to claim 1 above, and further in view of U.S. Patent No. 6,024,356 (Tanaka et al.). The Sata patent meets all of the limitations of claim 11, except for the pickup roller assembly having a pickup driving gear disposed on the first drive roller shaft; and at least one idle pickup gear disposed between the pickup driving gear and the pickup roller (13) to transmit the driving power from the pickup driving gear to the pickup roller (13). More specifically, the Sata patent meets the limitations of the claim except that it employs a pickup roller assembly with a pair of pulleys and a timing belt (33) in order to transmit driving power to the pickup roller (13), rather than a pickup driving gear and an idle pickup gear between the pickup driving gear and the pickup roller. For example, the tanaka et al. patent shows a pickup roller assembly with a pickup driving gear (10a) disposed on a first drive roller shaft (1); and an idle pickup gear (9) disposed between the pickup driving gear (10a) and a pickup roller (6) to transmit driving power from the pickup driving gear (10a) to the pickup roller (6). These two elements were art recognized equivalents at the time of the invention in those transmission applications where it is immaterial whether the belt and pulley arrangement or gear train arrangement is used for transmitting driving power to a pickup

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roller. Therefore, one of ordinary skill would have found it obvious to substitute a gear train for the timing belt and pulleys of the Sata patent to facilitate transmission of driving power to the pickup roller as suggested by the Tanaka et al. patent at column 1, lines 20-31.

Regarding claim 12, Figs. 3 of Tanaka et al. shows that the pickup roller assembly further comprises a pickup roller gear (4a) positioned coaxially with the pickup roller (6), wherein the idle pickup gear (9) is disposed between the pickup driving gear (10a) and the pickup roller gear (4a), and transmits the driving power from the pickup driving gear (10a) to the pickup roller gear (4a).

### ***Response to Arguments***

5. Applicant's arguments filed 03/09/2006 have been fully considered but they are not persuasive. Applicant argues that

Claim 1 of the present application, as amended, recites "a drive roller power transmitter disposed to transmit a driving force between the first drive roller and the second drive roller and between the first drive roller and the pickup roller and thereby transmitting a driving force to the first and second drive rollers and the pickup roller during a paper pickup mode, and transmitting the driving force only to the first and second drive rollers during a line feeding mode." The Applicant respectfully submits that Sata does not disclose at least these features of claim 1 of the present application.

Sata describes separating rollers 46 which rotate in a clockwise direction through gears 23, 25, 26, 19, a rotary shaft 10, a spring clutch 53, and gears 52, 51, 50, 49 when a motor 21 is rotated in a reverse direction (corresponding to the conveyance of the sheet of paper in the present invention) to rotate the conveying roller 64, and that the feed rollers 5 are rotated in the counter-clockwise direction by following the movement of the original without receiving the driving force by the action of the clutch 29 (Column 5, Lines 10-14, and Column 6, lines 36-40).

The gear 25 transmits the driving force to the separating rollers 46 which correspond to the second drive roller of the present invention, but does not

transmit the driving force to the feed rollers 5, which correspond to the first drive roller of the present invention. Thus, at least the drive roller power transmitter of claim 1 of the present application is not disclosed in Sata.

In response, it is noted that the claimed drive roller power transmitter is broadly claimed, such that it can include any elements that cause the first and second drive rollers (5 and 46) and the pickup roller (13) to operate as shown in Figs. 7A-7F). Fig. 7B shows the situation where all three rollers are provided with a driving force (line feeding mode) and Fig. 7D shows the situation where a driving force is not provided to the pickup roller (13)(line feeding mode).

***Allowable Subject Matter***

6. Claims 3, 5-10, 13-15 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. With regard to claim 23, no determination can be made at this time as to whether this claim contains allowable subject matter, due to the omitted structure, as outlined above in the rejection under 35 U.S.C. 112, second paragraph.

***Conclusion***

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the



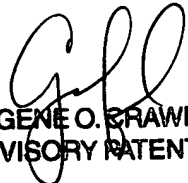
shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas A. Morrison whose telephone number is (571) 272-7221. The examiner can normally be reached on M-F, 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gene Crawford can be reached on (571) 272-6911. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

05/29/2006

  
GENE O. CRAWFORD  
SUPERVISORY PATENT EXAMINER